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THE BLOOD FLUKE *ORNITHOBILHARZIA CANALICULATA* (RUDOLPHI, 1819) (TREMATODA: SCHISTOSOMATIDAE) FROM THE GULL *LARUS DOMINICANUS* AT LYTTELTON, NEW ZEALAND

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ABSTRACT

Ornithobilharzia canaliculata, one of the causes of schistosome dermatitis in man in Florida, U.S.A. is recorded and described from New Zealand. Specimens measured were within the size range reported from elsewhere.

KEYWORDS: *Ornithobilharzia canaliculata, Larus dominicanus*.

INTRODUCTION

Blood flukes are digenean parasites inhabiting the blood vessels of warm-blooded vertebrates. Amongst trematodes, blood flukes are unusual in that they are dioecious, the male is usually adapted to hold the female in a gynecophoric groove. The first blood fluke (schistosome) to be described was Ornithobilharzia canaliculata (Rudolphi, 1819) in the seabird Sterna galericulata from Brazil (Witenberg and Lengy, 1967). Larus dominicanus was later recorded as a host, also from Brazil by Travassos (1942). O. canaliculata has since been recorded from several species of gulls from different localities in Europe, North and West Siberia, the Red Sea, and Canada (Witenberg and Lengy, 1967).

The only adult schistosomes recorded from New Zealand (Rind, 1974) are Dendritobilharzia pulverulenta from several species of Anatidae and Ornithobilharzia sp. from a shoveler Anas rhynchotis.

The present paper describes O. canaliculata from Larus dominicanus at Lyttelton in the South Island of New Zealand.

MATERIALS AND METHODS

Adult Larus dominicanus were examined as part of an annual class exercise in the Zoology Department, University of Canterbury. Specimens of O. canaliculata collected from the gulls in March 1979 and 1980 were measured whereas those examined in March 1981 and 1983 were not.

Schistosomes were observed in pairs and singly within mesentric vessels applied to the gut and in the body cavity, having escaped through torn mesenteric veins. Some were dissected out.

All measurements were made on preserved specimens after fixing under coverslip pressure in cold 70% alcohol and staining with Delafield's Haematoxylin. Measurements are given as ranges and means ± 1 standard deviation.

DESCRIPTION OF ORNITHOBILHARZIA CANALICULATA

MALE (Fig. 1(a) and 1(b))

Body length 6.12 - 14 mm (n = 17) X 8.95 $\pm$ 3.2
Body width 0.24 - 0.76 mm (n = 17) X 0.59 $\pm$ .01
Oral sucker diameter 0.12 - 0.36 mm (n = 17) X 0.24 $\pm$ 0.05
Acetabulum diameter 0.24 - 0.44 mm (n = 15) X 0.34 $\pm$ 0.07

Body leaf like, folded almost whole length to form a gynecophoric groove. Acetabulum stalked and spinous. Oesophagus surrounded by glandular tissue, opens into vestibule ("pseudocardia" of Witenberg and Lengy 1967). Gut crura arise from lateral margins of vestibule, anterior to acetabulum and follow a zigzag course to unite forming a short blind caecum near posterior end of body. Gut usually dark, filled with blood and haematin.

Testes (46-99) oval to round, stiuated medially between gut crura, extend posteriad from behind the acetabulum to a point three fifths of the way along the body. Genital pore opens in gynecophoric groove just behind acetabulum. Vesicula seminalis and cirrus present, indistinct.

FEMALE (Fig. 1(a) and 1(c))

Body width: 0.16 - 0.40 mm (n = 8) X 0.24 $\pm$ 0.0 mm
Oral sucker diameter: .30 - .50 (n = 3) X 0.07 $\pm$ 0.0

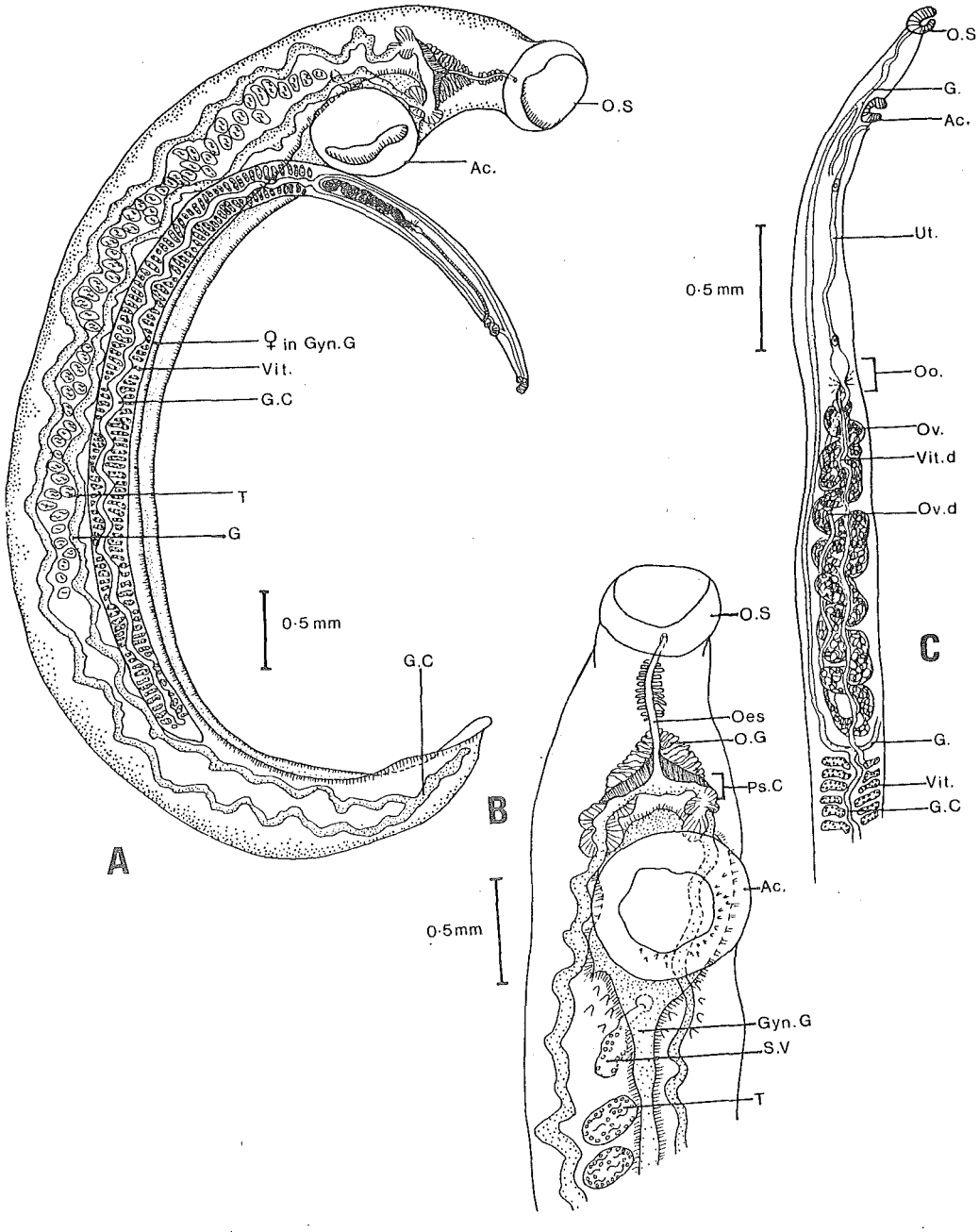

Fig. 1. Ornithobilharzia canaliculata A. Male and female adults. B. Anterior region male. C. Anterior region female. Ac., acetabulum; G.C., gut caecum; Gyn.G., gynecophoric groove; Oes., oesophagus; O.G., oesophageal glands; Oo., ootype; O.S., oral sucker; Ov., ovary; Ov.D., oviduct; Ps.C., pseudocardia; S.V., seminal vesicle; T., testes; Vit., vitelline gland; Vit.D., vitelline duct; Ut., uterus.

Body elongate, slender, and fragile. Oral sucker and acetabulum often indistinct. Oesophagus bifurcates anterior to acetabulum. Gut crura form a loop which closes posterior to ovary at approximately one fifth of total length of body. At this point a single caecum zigzags posteriad entire length of body, sometimes with minor irregularities but not branching. Vitellaria lateral on either side of caecum, in two rows. Vitelline duct runs anteriad, ending in ootype which is equidistant from either end of loop in gut. Oviduct containing ova, also traverses length of ovary from posterior end of ovary to ootype. Uterus relatively long and may contain one or two oval eggs; opens immediately posterior to acetabulum.

DISCUSSION

Larus dominicanus has a circumpolar distribution in the southern hemisphere. Its range extends as far north as Ecuador where it is an occasional visitor and it occurs along the southern coasts of Africa as well as Australia, New Zealand and Subantarctic Islands. It is common throughout New Zealand.

The ranges of measurements of the present material are well within the limits for O. canaliculata given by Witenberg and Lengy (1967) who redescribed the species and added notes on its classification and distribution.

Penner (1953) reported that the cercaria of this species, released from the mollusc Batillaria minima is one of the causes of schistome dermatitis in man in Florida ("clam diggers' itch"). In New Zealand the life cycle is not known and there has been no record of schistosome dermatitis from marine habitats. However, as the industry involving the cultivation of marine shellfish develops, man could be affected when harvesting the crop.

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